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AMERICAN POTATO JOURNAL

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THE POTATO ASSOCIATION OF AMERICA

EAST LANSING, MICHIGAN

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How I Grew High Yields of Potatoes

VICTOR SODERMAN, Crystal Falls, Mich.

After six years, of what I may term successful years of raising high yields of certified seed potatoes, I venture to say that I know a lot more about raising potatoes than I did in the spring of 1925, which was my first experience in following out a program laid down by our County Agent, and Upper Peninsula crops specialists. I have followed, as closely as possible, suggestions made by the potato department officials and endeavored to ferret out the reasons for this or that condition taking place during each succeeding year, and have come to the conclusion that the rules and regulations put down by the college are well worth adhering to. The following methods for raising high yields of potatoes can I am sure be followed in any potato raising sections.

The last two years changes were made in fall plowing. The last week in September the first plowing was made to a depth of two inches, just enough to keep the plow in the ground. This is done to cut the sod thin enough to enable the disc to cut entirely through, and to cut the roots of quack and other grasses. Then the field is left for a week or ten days to dry out, and then it is disced thoroughly and dragged with a spring tooth harrow. Following this it is again plowed to a depth of five or six inches, followed again by discing and dragging. This completes the fall work and nothing more is done on the field until about a week before potato planting time when it is again plowed to a depth slightly deeper than the second plowing. No discing is done at this time, but the field is dragged once with a spring tooth harrow. This may seem to a good many to be overdoing it, but after two years in which rainfall has been at a minimum I am absolutely convinced that this slight extra

working of the soil has put it into the form of a flour condition and capable of holding moisture a great deal longer. During a season of excessive rainfall this soil condition tends to keep the moisture from being absorbed rapidly and allows a good deal to evaporate. This extra plowing also eliminates considerable dragging and cultivating after the potatoes are planted; and enables the small roots of the potatoes to reach out for food and prevents a lot of ill-shaped potatoes. Barnyard manure is put on at the rate of ten tons to the acre and plowed down at this time.

Selection of good seed potatoes is a very important matter, as we all realize that one strain may outyield another and therefore seed that repeatedly produces high yields naturally can be relied upon. As an example, two years ago I received five bushels of certified seed, which had been especially selected, from the experiment station and which was thought to have high producing ability. These were put into the seed plot. The first season was very dry and due to this the yield fell far below expectations. They were again given a chance the following year, but after another dry season and another poor yield they had to be abandoned. During each growing season I give especial attention to some part of the large field where there is a marked superior growth and uniformity of tubers. This area is marked off and seed is selected from it for the following year. This method has given good results.

The seed is treated with corrosive sublimate according to directions recommended by the college. The potatoes are then spread out on the floor of some shed to green sprout for about two weeks, care being taken not to let the sprout get too long as they may break off during cutting and planting and thereby set them back and cause some uneveness in coming out of the ground. All weak sprout potatoes are discarded. The potatoes are cut in such a manner as to generally assure each seed piece at least two eyes. No more potatoes are cut each day than can be planted the same day.

A two-man potato planter is used and a 100 per cent planting is had in mind, as the number of missing hills is quite often traceable to faulty planting. It is a difficult proposition to expect a high yield when ten per cent or more hills are missing. Fertilizer is applied at the rate of 500 pounds to the acre and this is put in the row and close to the seed piece, but not in contact with it. I have changed the analysis from year to year, as I am of the opinion that more potash and phosphate should be used. The potatoes are planted to a depth of four inches. Rows three feet apart and seed pieces 12 inches apart.

Nine inch spacing was tried two years, but was not found satisfactory.

A few days after planting the field is dragged with a light spiketooth drag set so as not to come in contact with the seed piece. Dragging deep has in many instances caused an uneven growth. As soon as the plants start out of the ground and when there are a sufficient number to indicate the row they are ridged or covered with about an inch of ground. This seems to bring them all out about the same time. There is no further cultivating done until weeds or grass appear and then a light cultivation is given. As soon as the plants are about ninety percent out of the ground spraying is started. This I consider the most important spray of the entire season and think it does much to prevent disease starting and spreading. I use a 4-4-50 solution of bordeaux mixture, adding calcium arsenate when bugs make their appearance. Five hundred gallons of this solution is applied to four acres. The pressure is set around three hundred pounds for a slow walking team. Immediately after spraying I hill or ridge the rows to a height of four inches and have a guard built on the hiller to prevent it from throwing dirt on the branches and leaves of the plants. This practice of hilling I know is not generally recommended, but I have a good deal of confidence in the practice as it is a means of controlling weeds and grass growing between the plants.

I have made it a practice of spraying every seven days whether it seems necessary or not. When spraying the machine is watched carefully and the minute a nozzle plugs up the machine is stopped and the nozzle cleaned out. The sprayer is then backed up to where the nozzle stopped spraying. This I do so as not to leave the slightest part of a row unsprayed, as a lot of damage by insects and diseases can be started and spread from such a point before the next spraying. The same thing is done when the drive chain or boom breaks. Watching these little things helps insure the crop and also brings the diseases down to a minimum. About the fourth or fifth spray, whether it seems necessary or not, nicotine sulphate is added to control plant lice.

Last, but not least, comes the roguing. This requires a lot of practice and experience and I generally cover the entire field four times during the growing season. The first roguing is started when the plants are about six inches high and the last roguing is done a week before digging time. I am of the opinion that if there are any diseased or off type plants they will show up to good advantage at this stage of their growth, and the loss from roguing strong at that time is the least,

as all the potatoes are mature and can be saved for table use. Good seed after all can only be secured by careful and persistent roguing.

Size of Potato Sacks in General Use*

WILLIAM C. LYNN, New Jersey Bureau of Markets, Trenton

Sacks ranging from 10 to 150 pounds are in use for marketing potatoes in various sections of the country, but the most common of these are, of course, the 100, 120, and 150-pound sizes. The 100-pound sack predominates over other sizes in the south central and western states; the two-bushel package is most commonly used in the north central states, except Wisconsin, and in Pennsylvania; the 150-pound sack is the outstanding unit in New Jersey, Long Island, New York and Michigan, and in one or two adjoining and less important potato sections. Almost all states ship potatoes in sacks of various sizes, but this division applies to the sack most widely used.

Maine, known as a heavy potato shipper throughout the winter, and also as a competitor of New Jersey on the New England markets during late August and early September, has almost over night turned to the use of the 100-pound sack. Two years ago the most common sizes were the 120-pound for New England sales and the 150-pound for other markets. It is estimated that during the present shipping season (1930-31) 75 per cent of the shipments have been in the hundredweight sack, and general opinion is to the effect that it will be used still more in that state in the future.

New York State, particularly the western section, uses the ten-peck sack for most shipments. A few 120-pound sacks are packed for certain markets, and some 100's for chain store trade. While reports indicate that more of the smaller sizes will be used, the predominant package for some time will be the 150-pound sack. Michigan, also a ten-peck sack state, reports that a larger movement of the 1931 crop will be in 100-pound sacks. Wisconsin, previously using the 150-pound unit, has indicated a large use of the hundredweight sack except for southern markets which prefer ten pecks, and will use the smaller sack extensively in the future.

*From "Hints to Potato Growers."

Some of New Jersey's competitors on mid-western markets—Kansas, Missouri and Kentucky—largely use the 100-pound package, although some stock, particularly from Kentucky, is marketed in 120's and 150's, depending on the buyer or the preference of the market where they are sold. The North Central States, chiefly Minnesota, the Dakotas, and Nebraska, have thus far used two-bushel sacks for a majority of their shipments, but all these states report a growing popularity for the 100-pound package and indicate that a larger proportion of the crop will be marketed in the smaller unit.

The 100-pound sack is the most popular size in the markets, according to replies received. This is not only true of the general trade, but more especially of chain store buyers who seem to be insistent on the hundredweight package from most sections. Other popular sizes from the chain store point of view are the 15 and 25-pound sacks, most of which are packed in Idaho, and the 90-pound size from Canada. Few sections report any demand on the part of chain stores for units larger than 100 pounds. The 120-pound sacks rank next to the hundredweight in popularity with the general trade, and also move through some chain outlets, as do also 150-pound sacks from New Jersey and Long Island. Replies indicate that the f. o. b. price on 100 and 120-pound sacks is, in general, proportionately the same as that for 150-pound sacks. As one shipper expressed it, "It isn't a question of price premium for size of sacks, but one of market preference."

Not only are certain sizes preferred by the general trade and by chain stores, but individual markets are also known as preferring a specific size. New York City, for example, is classed as a 150-pound market; Cleveland and Pittsburgh largely favor the 10-pound size; Philadelphia and Baltimore have a distinct preference for 100-pound sacks. This varied preference by the general trade, by chain stores, by sections, and even by individual markets, reacts as a hardship on shippers in certain producing sections, particularly late-producing areas, which is aptly expressed by a well-known shipper in his following comment: "The size of bags in the potato business has become a perplexing problem. The A. & P. and some of the other chain stores prefer the 100-pound package, while some markets will have nothing but 120-pound packages; however, the southern markets and most of the northern and central western markets, excepting Pittsburgh, want the 150-pound package. Therefore, we are forced to keep a supply of each sized sack on hand at all times, and not knowing where a car is to be sent when loading (as we may not have orders booked ahead) sometimes causes us a great deal of trouble, and sometimes obliges the turning down of orders just because

we don't happen to have the right sized sacks loaded (this in the case of immediate shipment). We are desirous that either the 100 or 120-pound sack, preferably the former, be adopted by the late shipping states."

The trend, as is generally known, is toward a more universal use of the 100-pound sack. Its advantages are: (1) more easily handled; (2) a unit equal to that used in hundredweight purchasing from growers, and in computing freight rates; (3) most general in demand by the trade. Its disadvantage is in proportionately higher cost for sack and twine, and for labor in sacking, sewing and loading. Those states already principal users of the 100-pound unit indicate a continued use of that size. Most other sections in which two or more sizes are in use (including the 100-pound size) express the opinion that there will be an increased use of the hundredweight sack. In New Jersey and Long Island the trend, for the present at least, is for continued use of the 150-pound sack. This size will continue in use until a smaller size is preferred and demanded by the trade dealing in potatoes from these sections.

Crop and Market News

Carlot Movement Light

(Contribution from Bureau of Agricultural Economics)

Potato markets registered a number of changes during the period from mid-July to mid-August. Eastern and middle-western stock was selling considerably lower in July, but the Chicago "futures" market advanced in price. Shipments were averaging only 400 cars daily, or but little more than half the early July volume. Carlot movement was much lighter than in August of 1930. Prices were running one-fourth to one-fifth below those of a year ago.

Conditions of the potato crop suffered a noticeable decline and the August forecast of production was reduced 25,000,000 bushels, or 6% below the July estimate.

The August 1 condition of potatoes at 74% of normal is the lowest reported for that date in 10 years. The crop declined nine points in condition during July owing to heat and drought conditions prevailing in the west north central states and due to heat and shortage of irrigation water in many of the western states. In Iowa, North Dakota and Nebraska, the reported

conditions are the lowest in about 20 years; in South Dakota and Colorado, the lowest to be found on the available records for August 1.

On the basis of the August condition, this year's total crop is forecast at 370,580,000 bushels, compared with the revised estimate of 1930 production at 343,236,000 bushels. Although weather conditions between now and harvest may still bring about some improvement in the prospects, the present forecast of production in the 35 late potato states has dropped to 324,267,000 bushels, compared with the estimated 1930 production of 306,569,000 bushels.

WHITE POTATOES—Forecast Production, August 1, 1931, Compared with 1930 Estimates by Groups of States.

Group	Acreage		Yield		Production	
	1.000 Acres		Bushels		1.000 bushels	
	1930	1931	1930	1931	1930	1931
United States	3,167	3,506	108.4	105.7	343,236	370,580
35 Late States	2,753	3,010	111.4	107.7	306,569	324,267
19 Surplus	2,045	2,250	115.0	111.6	235,078	251,050
4 Eastern	597	639	153.4	158.9	91,551	101.526
6 Central	1,055	1,176	69.6	76.9	73,413	90,412
9 Western	393	435	178.4	135.9	70,114	59,112
16 Deficient	708	760	101.0	96.3	71,491	73,217
8 Eastern	232	241	133.4	136.7	30,951	32,953
8 Central	476	519	85.2	77.6	40,540	40,264
13 Southern	414	496	88.6	93.4	36,667	46,313

During the middle of August, best sacked Cobblers were returning $1.15-$1.20 per 100 pounds at New Jersey shipping points, with Long Island stock selling at $1.05-$1.10 on an f. o. b. basis. The Kaw valley of Kansas reported combination-grade Cobblers at 85c-95c per 100-pound sack, while best stock in Missouri returned $1.00.

Shipments were increasing again, particularly in the middle west and the west. Total for the week ending August 15 was 2,875 cars, but that was still 1,000 less than movement of a year ago. New Jersey decreased 665 cars, while Long Island increased to 190. The season had opened in western New York. Virginia shipped only 75 cars of potatoes, Maryland 45 and West Virginia 30 cars during the week. Maine was credited with 35 cars. Minnesota and Wisconsin were both becoming active. Kentucky originated 145, Kansas increased to 365, and Missouri to about 300 cars. Colorado started 155 cars to mar-

ket, Utah 105, Idaho 325, Washington 120, and California 170 cars. Combined track holdings in a dozen large markets were only 345 cars on Thursday, August 13.

City dealers were getting $1.05-$1.85 per 100 pounds of Cobblers from New Jersey, while New York sales of Long Island stock ranged $1.30-$1.40. Boston quoted early arrivals from Maine at $1.60. Barrels of best Cobblers from Virginia ruled $1.85-$3.25 in several cities. Atlanta reported midwestern Bliss Triumphs stronger at $2-$2.25 per 100 pounds. The Chicago carlot market quoted Missouri Cobblers lower at $1-$1.15, Kentucky stock at $1.65-$1.75 and Idaho Russets and Bliss Triumphs at $1.85-$2. The asking price for early arrivals from Wisconsin was $1.50. The Fort Worth carlot market reported Utah Cobblers within a range of $1.60-$1.65 and Idaho Rurals at $1.70-$1.75. The October "futures" market in Chicago had advanced on Idaho Russets to $1.64, on Round Whites to $1.16, and on Maine Green Mountains to $1.25 per 100 pounds.

NEW ENGLAND CROP REPORTING SERVICE, AUG. 12, 1931

Certified Seed Potato Acreage 13% Greater Than in 1930

Reports from the inspection officials in the northeastern states and provinces indicate that 50,747 acres of potatoes have been entered for certification this year compared with 45,046 acres entered last year and 45,169 acres entered in 1929. Increases in the potato acreage entered for certification were general in all of the northeastern states and provinces. The acreage increase in Maine was 17%; in New Hampshire 46%; in Vermont 12%; in New York 3%; in New Brunswick 96%; in Nova Scotia 95%; but somewhat less than 1% in Prince Edward Island.

Among the principal varieties in all of these sections the acreage of Cobblers was reduced 4%, Smooth Rurals 10%, and Russets 6%; while Green Mountain acreage increased 29% and Spaulding Rose 4%. The crop appears to be getting an excellent start with the various diseases somewhat less noticeable than in 1930.

In Maine the outlook is for good yields due to the excellent growing practices used. The stand is good. The comparatively light aphid infestation last year is enabling more Mountains than usual to pass inspection. All varieties show a material increase in the acreage entered this year.

Mountains in both New Hampshire and Vermont show an increase in acreage and Cobblers are also increasing in Vermont. The condition of the crop appears to be good, some poor stands in Vermont.

Outlook for the crop is very good in New York. Cobblers, Mountains and Spaulding Rose show increases in acreage while

other varieties have been reduced. Last year out of 2,987 acres entered for certification 2,726 acres passed and similar results may be expected this year.

In New Brunswick the stand is excellent, disease content very low and the outlook at the present time very good. In 1930 2,262 acres passed for certification out of a total of 2,722 acres entered.

In Nova Scotia irregular stands and misses were caused by the poor condition of the seed at planting time. Rains delayed planting and the crop started late. In 1930 310 acres passed inspection out of 514 acres entered.

In Prince Edward Island a material decrease in the acreage of Cobblers was largely offset by a similar increase in the acreage of Mountains. Prince Edward Island with 25,004 acres entered in 1931 continues to lead the northeastern states and provinces in the acreage of certified seed potatoes. Last year 24,875 acres were entered for certification of which 20,925 acres passed final inspection.

United States Potatoes 370,580,000 Bushels

Conditions to August 1 indicated a United States potato crop totalling 370,580,000 bushels compared with 396,451,000 bushels the outlook a month ago, 343,236,000 bushels the revised estimate of 1930 production and 380,502,000 bushels the five-year average 1925-1929. This prospective crop is 8% greater than the crop harvested last year but 3% less than the recent five-year average. Heat, drought and shortage of irrigation water in many of the central and western states, together with unfavorable wet weather in Maine, are largely responsible for the decline in expected production during July.

In New England the potato crop is expected to total 55,930,000 bushels compared with the indicated production a month ago of 58,930,000 bushels, 55,665,000 bushels harvested last year and 48,110,000 bushels the average production of the five years 1925-1929. Heavy rains and higher than normal temperatures during July were not favorable to the development of the New England potato crop. Potatoes have made a large top growth which will be very susceptible to blight damage during August.

The Maine potato crop is estimated at 48,720,000 bushels, nearly 6% more than the crop harvested last year and 23% above the five year average. In Aroostook county high temperatures and heavy rains have been unfavorable to the crop. Blight is developing rapidly in southern Aroostook county and is likely to become general if August weather conditions are favorable to it. The crop has been damaged by hail in some parts of the county.

Potato prospects in the eight major late crop states (Maine, New York, New Jersey, Pennsylvania, Michigan, Wisconsin, Minnesota and North Dakota) declined 8% during July and the crop is now expected to be 19% greater than the light crop harvested last year in these states but 4% less than the five-year average. In the 20 late crop states (including the eight states previously mentioned and South Dakota, Nebraska, Kansas, Montana, Wyoming, Colorado, Idaho, Washington, Oregon, California, Utah and Nevada) the outlook is for a potato crop 6% greater than harvested last year and 5% below the five year average.

In the fourteen late deficient states the most important of which are located in the Ohio valley, only a small potato crop approximately equal to the light crop harvested in these states last year is expected and a crop 19% below the five-year average production. In the southern states the early crop is 25% larger than harvested last year and 31% above the five-year average.

In New York frequent rains have enabled the potato crop to make rapid progress. On Long Island the yield of potatoes is somewhat above the excellent yields obtained last year. Potatoes in Pennsylvania are making a satisfactory growth. Rainfall has been adequate in most parts of the state. In Michigan, Wisconsin, Minnesota and North Dakota potato prospects were materially reduced during July by drouth and excessive heat. Some relief has been afforded by recent rains but more moisture is needed.

C. D. STEVENS and G. BURMEISTER, *Statisticians.*

Chicago Mercantile Exchange

Potato futures on the Chicago Mercantile Exchange climbed forward hurriedly early in August but suffered from pressure later in the month and the closing sales on August 31 were somewhat under the peak levels reached during the month. Idaho Russets struck $1.68, Green Mountains $1.28 and Round Whites $1.17. Closing prices were Idahoes $1.50, Green Mountains $1.14 and Round Whites $1.00. The close of July found the prices as follows: Idahoes $1.47, Green Mountains $1.09, and Round Whites $0.97.

There was a great deal of bullish information received during the early part of August, conditions in various states being reported rather unfavorable for the fall crop. The work of the drought was sufficient to attract considerable buying.

The northern and western states were particularly hard hit while Maine reports indicated danger of blight as a result of ex-

cessive rains. As the markets climbed, however, the pressure of hedging sales and profit taking halted the advance.

Shortly thereafter, the statistical news changed to the less favorable side. The rains lessened in Maine and moisture was received in some of the northern and western states. As a result, the selling became more pronounced and dips more frequent, much of the rapid bulge in the first week of the month being lost.

There seemed to be a rather wide division of opinion as to the future, but the issuance of the monthly government crop estimate may do much to settle the question of price one way or the other. Private sources predict a further cut in the estimate but there is to be found a great deal of bearish sentiment in a few quarters.

Trading on the exchange totalled 664 cars, the third heaviest month since the trading started last January.

TABB POTATO SERVICE

Market Bulletin No. 275, August 27, 1931

Potato markets continue dull and draggy all over the country, and the demand is very slow. Price does not seem to be much object. Shipments are not heavy, but this is due mostly to the lack of demand. There are plentiful supplies available, and carlot shipments were reported from 27 states yesterday. There is nothing encouraging in sight and the best that can be hoped for is for prices to hold about steady. The course of least resistance is still downward.

Late crop conditions continue about unchanged. The weather in Maine has been more favorable during the past week, but the northern states are barely holding their own. Idaho reports are conflicting, but Colorado is in very poor shape. It seems very likely at present that the next government estimate may show a further decrease.

Most of the late states are now being forced to curtail their shipments, due to the holdover of the intermediate potatoes, particularly in New Jersey. Kansas, Missouri, Kentucky and even some of the more southern states are still shipping moderately. The present situation is very similar to that of the late summer of 1928, and it hardly seems now that there will be any gap between the Cobblers and the late Rurals and Green Mountains. Wisconsin shippers are holding stubbornly for $1.00 f. o. b., and Idaho No. 2's are bringing very little more than the freight and icing charges, but there is not anything in sight to bring about any improvement.

CURRENT STATISTICS—CARLOT SHIPMENTS

	AUGUST 1931							Total This Season To Date	Total Last Season To 8/27	Final Total Last Season
	20	21	22	23	24	25	26			
Colorado	35	20	38	7	4	33	17	657	882	18,079
Idaho	46	50	47	....	28	23	23	1,219	808	32,873
Kansas	21	13	17	3	18	35	23	2,538	3,780	3,586
Kentucky	9	5	10	....	8	14	11	363	413	518
Maine	47	16	26	....	12	44	37	294	468	53,381
Minnesota	7	4	11	....	4	10	2	96	1,393	16,361
Missouri	3	6	13	....	9	9	9	1,337	1,981	2,016
Nebraska	12	11	12	....	11	9	10	108	295	9,180
New Jersey	131	178	132	....	78	113	101	3,231	5,230	6,600
Long Island	34	42	58	....	36	39	35	769	1,966	9,475
Wisconsin	66	50	46	....	57	72	75	483	816	10,482
Total U. S.	515	474	495	25	330	463	454	74,285	78,315	257,817

Prices on Round Whites in Chicago are not quite as low as they were on this date in 1928, but the trend of the market seems very similar. During that season the Wisconsin Whites started out at around $1.00 in Chicago on September 1st, and dragged along at 90c-$1.00 until about the 15th, when they advanced to $1.20-1.35, and then fell back during the latter part of the month to around $1.00 again by the first of October. Maine Cobblers are now selling just about the same as they were on this date in 1928. It seems very likely that if we do get any improvement during September this season, it will probably be delayed until around the 15th or 20th of the month.

The New Jersey situation is still probably the most important one in the country. We are advised by wire today that this crop is thought to be about 65% shipped, including the trucking. Calculating on this basis, there are probably another 2,000 cars yet to move in a carlot way; and at the present rate of shipment, it will be close to September 15th before this state ceases to become a market factor. Being fully matured, the New Jersey Cobblers make very hard competition for the somewhat immature Maine Cobblers in the southern New England markets. Long Island is also about 1,200 cars behind their movement to this date last season, and the present crop is larger.

It is difficult to say just how many cars are left in Kentucky, Missouri, Kansas, and around Kearney, Nebraska, but with the demand so light, they will probably be dribbling along for another ten days or two weeks; and as their shipments de-

cline, Michigan, Wisconsin, Minnesota and Colorado will increase. The Idaho shippers are having difficulty in finding an outlet, and the larger part of the current shipments have been finding their way to Chicago.

Trading is slow in Chicago today, at mostly $1.15-$1.25 on Wisconsin Cobblers, and $1.65-$1.75 on U. S. No. 1 Idaho Russets, with a few fancy cars selling 10c or 15c higher. The best Idaho No. 2 Russets are mostly around $1.25, while ordinary stock ranges from $1.10 to $1.20. Considering that the freight and icing charges on Idaho stock are nearly $1.05 per cwt., it is evident that many of these No. 2's are hardly returning the shipper anything. Triumphs are ranging from $1.10 to $1.25 on Wisconsins and from $1.35 to $1.50 on Idahoes. Most arrivals are from Idaho and Wisconsin.

New Jersey shippers are holding for mostly around $1.00 per cwt. f. o. b., while the Maine shippers are asking $1.25 cwt., delivered New York city on Cobblers today. The price to the growers in Maine is 85c per barrel bulk, and the demand is very light. Wisconsin shippers are paying mostly around 70c cwt. to the growers in that state.

The Idaho shipments have fallen off, due to market conditions. The California markets are taking very few of the Idaho Russets, and the southwest is taking only limited supplies of Cobblers and Rurals. Most of the Idaho Russets are therefore coming to St. Louis and Chicago.

Late Crop Conditions

The daily weather maps have shown very little rain in Maine during the past week, and judging by the selling orders that have been coming into the futures market, crop conditions over there are at least no worse than they were a week ago.

Through Michigan, Wisconsin, Minnesota, North Dakota and Nebraska, the late crops are standing still and it seems now that the September 1st condition will probably be lower than it was a month ago. There are some favored spots that have had ample rainfall, particularly northeastern Wisconsin and the upper peninsula of Michigan, but, generally speaking, the late potatoes in all of these states are very small and the yields are still dependent upon favorable moisture and growing conditions during the early part of September and a late frost. Central Wisconsin is particularly dry. In the northern part of the Red River valley, many of the fields are ripening prematurely, and the yields will apparently be comparatively light, due to potatoes having no size.

The Nebraska Potato tour was made last week, and conditions on the whole were found to be considerably poorer than they were a year ago. Most of our correspondents are of the opinion that conditions have declined during August, and that the September estimate will show a further reduction. The ultimate crop depends upon the rainfall during the next two or three weeks and the time of the first killing frost. It is thought that the yield of certified Triumphs will be about one-third less than last season.

Conditions in the San Luis valley of Colorado seem to be the poorest of any important producing section in the country. Drought conditions have prevailed over the valley all season, and the rains have been very limited. Early potatoes now being dug upon some of the best farms are running only about 60 sacks per acre. A prominent banker of the valley wrote us under date of August 24th that he does not believe there will be more than 3,500 carloads of potatoes from the valley this season, and he figures that the season is now too late for recovery. Others, however, including some of the leading shippers, still think that the valley may produce 50% of a normal crop, or something like 5,000 cars, which might be increased by a few good rains between now and the time frost comes. It is certain that this crop is practically cut in two, and that the sizes and quality will average much poorer than usual.

The Idaho crop is still impossible to estimate very satisfactorily. Some think that it is cut almost 50% from normal, while others feel that conditions over the state as a whole have improved considerably during the last two or three weeks. Scattered sections have been out of water for irrigation for about two weeks, and we understand that practically the entire state will be dry by September 5th. Under these conditions, it seems impossible for the stooled potatoes to ever develop into marketable size. Considering the increased acreage, however, it still seems safer to assume that Idaho will have around 25,000 cars, compared with nearly 33,000 cars last season, provided that the markets are high enough to attract the No. 2 Russets. Without doubt, the percentage of No. 2's, due particularly to second growth, will be heavier than for years. Right now it must be admitted that the outlook for a profitable market for these No. 2 Russets is not very bright for this fall.

Notes

COLORADO

Hot weather and general shortage of irrigation water has shortened the crop this year. The condition of the crop August 1st was 60 per cent compared with 81 per cent last year and 82 per cent the 10 year average.

The forecast is for 10,600,000 bushels which is practically 5,000,000 bushels less than the 1930 crop. The indicated average yield per acre this year is 100 bushels. The average yield in 1930 was 175 bushels per acre.

There is a large acreage of certified seed potatoes in Colorado this year. According to reports received the quality of the seed crop is the best we have ever had.

—LOU D. SWEET.

NEBRASKA

Thirteenth Annual Potato Tour of Nebraska

On August 17, the thirteenth annual tour was begun at Hay Springs, in Sheridan county. It began with a caravan of 35 cars loaded with business men of Hay Springs, farmers of that community and the neighboring counties, and several carloads of interested men from counties in South Dakota. The first problem was the study of potato storage cellars. A stop was made at the Wm. Coleman cellar to examine the construction used. The features of this cellar were the wide driveway, double entrance, high roof, and deep bins. The good practice of storage followed in this community is to put the potatoes in sacks, which are filled and sewed in the fields, and then transported to the cellars, to be stored in the sacks on false floors until the time of grading and shipping. Many advantages of the method were described, and judging from the almost complete use made of the method in this section, its success is undisputed.

Fields of Bliss Triumph and Irish Cobbler varieties that have been entered for certification were visited. The Triumph stock was secured from seed that was developed and produced by the College of Agriculture and tuber-indexed in their green houses in Lincoln. Practically four-fifths of the fields that are entered for certification in Nebraska in 1931 are from their tuber-indexed foundation stock.

Proper and improper methods of early culture to keep down weeds were studied at the farm of Geo. F. Koehnke. A field that did not have a blind cultivation or harrowing after the planting exhibited a very weedy appearance, while the remainder of Mr. Koehnke's fields were in excellent condition, due to early and efficient care. A very practical and efficient hand seed cutting table was examined, which accommodated six cutters, permitting about forty to fifty bushels to be cut each day.

Fields seen on the farm of Max Kutchara were planted to "pure line" seed stock, representing the latest development of the Nebraska Agricultural College. This consists of stock that has been increased from a one-tuber selection several years ago. Several fields of this stock were visited, and southern buyers and growers that were accompanying the tour expressed great satisfaction in the pronounced uniformity that this seed stock exhibited. Various strains of such "tuber line" stock are now available, mature at various dates, and are classified as very early, early, medium, late and very late maturing, by the Agricultural College. The medium maturing strain is most widely distributed, and promises to be the most satisfactory for general purposes, since it is high yielding, and does not require a long season to become mature.

During the afternoon the tour was conducted through fields in the valley of Bordeaux creek, to study a five-year rotation on the farm of W. L. Hawk. The rotation consisted of spring wheat, with sweet clover, corn, spring wheat with sweet clover again, corn and potatoes. The sweet clover is pastured the spring following planting, corn is cut off so that the stalks do not increase scab.

On the field of T. J. Butler, potatoes following sweet clover showed a 100 per cent stand. After several stops at Triumph fields, the group were conducted through the track-side storage and grading house of Harry B. Coffee in Chadron. Modern potato grading machinery, equipment for handling all sacked potatoes, and modern storage were studied. Mr. Coffee believes thoroughly in the full sack method of handling his potatoes from fields.

After visiting other fields of tuber-line stock, studying the effect of spread of disease from diseased stock, to near-by certified fields, the tour proceeded to Alliance for the evening.

On the morning of the 18th the tour assembled at Hemingford, in the center of a large commercial seed production area. Shipments of Triumph seed stock have been heavy from this

point in the past few years. The tour was followed by over 55 carloads of interested people.

The first stop was made at the farm of Mrs. Ella Foley. Mrs. Foley showed that virgin sod broken in 1927, part of which was planted to corn that year, and the remainder left idle, had produced much larger crops on the land left idle the first year. The potatoes this year were far advanced over the land originally left idle.

At Uhrig Brothers' farm a field of Irish Cobblers from Prince Edward Island, Canada, stock was seen. This stock is being grown to furnish foundation seed for this variety, as growers are trying to diversify their potato acreage in the district. Wm. Morrow, marketing manager for the Nebraska Certified Potato Growers, explained that the Cobbler variety was being developed with the idea of getting a market that would not conflict with existing Triumph markets.

On the farm of Donald Pierce and Ormond Benedict a 145-acre field of Triumphs, entirely farmed with tractors, was visited. The exclusive use of tractors for potato farming is becoming more extensive, and received much comment. The farm of P. F. Johnson, another field entered for certification had been entirely farmed with tractors, with entire success. The effect of sweet clover sod, on Mr. Johnson's farm, was quite noticeable, as the extreme drouth affected this more severely.

After a stop at a commercial field to study the results of the use of poor seed, and study of disease conditions, the tour was returned to Hemingford for lunch. Immediately afterwards all went to the Box Butte Experiment Station at Alliance to study the rotation plats on potatoes.

The station is devoted to the study of the problem of the dry land potato farmer, and judging from the record-breaking attendance of over 400 people, it is truly answering its purpose. H. O. Werner, of the Agricultural College, pointed out methods by which growers could avoid much of the injury that is commonly done to potatoes at digging time. In the past years the injury to potatoes that is avoidable has been the source of the greatest loss to Nebraska potato growers. The interest displayed showed that the growers were aware of the losses they were having, and in the suggestions for improvement. Other problems studied included those of storage cellar ventilation, field culture, strain tests, depth and planting distance, use of immature and mature seed, cutting in advance of planting, seed value of large and small potatoes, and various crop rotations.

On the third day of the tour, fields in Scotts Bluff county, from Morrill to Scottsbluff districts were visited. The fields,

which were planted under irrigation largely were on alfalfa ground, and several had been 'irrigated up," a system that was necessary due to the dry condition of the soil at planting time. At Riley Bros., a field containing several varieties including Rose Seedlings, Bliss Triumph, Russet Rurals, Cobblers and Early Ohios were examined.

Superintendent James A. Holden, of the Mitchell Experiment Station, was in complete charge of the afternoon, and took the visitors over the station to the rotation experiments. On the most profitable rotation—alfalfa three years, potatoes, sugar beets, oats in which alfalfa is sown—the potatoes produced a profit of $76.18, on the basis of a 12-year average, 1917-1928.

On the fourth day of the tour, fields in Banner and Kimball counties were seen. A field of Vernon Lind, that was two miles long, was first visited. Other stops in Triumph and Cobbler fields, both certified and uncertified stock, were examined to compare the effects of use of certified seed, which was practically free of disease, with diseased stock. Horses and horseless farming was compared, and the potato growing in the midst of a large wheat farming community, showed itself to be a profitable undertaking. Newly constructed potato cellars in Kimball, both on trackside and on farms, were investigated. The construction of such houses is being urged, because of the high cost and losses occasioned by both pitting potatoes and shipping to cold storage houses.

A very optimistic spirit prevailed during the entire trip, showing growers were not despairing over prospects for poor prices and for poor yields, though these were in prospect.

—MARX KOEHNKE, Alliance, Neb.

Review of Recent Literature

Westover, K. C. Northern and Native-Grown Potato Seed Stock. West Va. Ag. Exp. Sta. Bul. 242:1-20. June 1931.

The author reports results of a series of tests comparing yields of potatoes from high yielding strains of seed grown the previous year at both high and low altitudes in West Virginia at the Kentucky Experiment Station and at the Minnesota Ex-

periment Station. Results are reported for the five-year period 1921 to 1924. The object was to determine the feasibility of seed potato production in certain of the upland sections for a number of years at the high and low-altitude limits at which seed would likely be produced. The northern strain was previously grown in the extreme northern part of Minnesota.

The native strains, particularly the high-altitude strain, were superior to the northern-grown strain in the initial plantings at Morgantown in 1921. This difference persisted over a period of years in the trials in West Virginia. From the results of these trials it is apparent that the native strains compared favorably in performance with the northern strain; that these trials indicate that the native strains did not deteriorate more rapidly than the northern strain. It is concluded therefore that it is feasible to produce seed potatoes in the medium altitudes of this state. It is suggested that an increase in altitude has an effect on the relative comparison of the strains similar to a change to a more northern latitude.

—E. V. HARDENBURG.

Denniston, L. T. and **Hodgkiss, H. E.** Profitable Potato Spraying. Pa. Agr. Exp. Sta. Circ. 137:1-8, May 1931.

A summary of results of spraying demonstrations conducted in Pennsylvania during the year 1918 to 1930 inclusive are presented in tabular form. The average increase in yield per acre from spraying ranges from 34.8 bushels in 1918 with five applications of Bordo to 136.7 bushels in 1929 with 11 applications. These yield increases represent percentage increases ranging from 32 to 90 and include dry or blight-free years as well as wet years.

The authors emphasize the three factors (1) time, (2) manner and (3) materials as being essentials of successful spraying. Three series of spray applications are recommended, namely, the foundation series, the heat series and the blight series, all equally important. Pressure requirements, boom arrangement, pump capacity, Bordo making, and care of the sprayer are each discussed in detail.—E. V. H.

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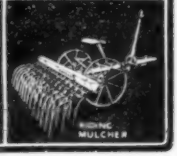

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